

In re Patent Application of:
SONZOGNI ET AL.
Serial No. 09/914,315
Filing Date: **AUGUST 24, 2001**

REMARKS

Applicants would like to thank the Examiner for the thorough examination of the present application. The informalities in dependent Claims 17 and 33 have been corrected as helpfully noted by the Examiner. In addition, new Claims 37-44 are being added. The arguments supporting patentability of the claims are presented in detail below.

I. Independent Claims 5, 14, 20 And 29 Are Patentable

The Examiner rejected independent Claims 5, 14, 20 and 29 over the Swartz patent in view of the Pockrandt et al. patent.

The present invention, as recited in independent Claim 5, for example, is directed a chip card comprising a microprocessor including an operating system working with a set of instructions. The microprocessor comprises a first register for storing a first code, on at least one check bit, for an entity to be executed. The first register is updated based upon a call instruction and a return instruction during execution of a new entity.

The chip card further comprises a memory connected to the microprocessor for storing a plurality of application programs, and a checking device is connected to the microprocessor for checking, as a function of the at least one check bit, whether access to locations in the memory is authorized for the new entity.

The chip card in accordance with the present invention enables management of different software application programs while providing high security. The chip card advantageously detects when the user of an application program

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tries to exceed his rights, for example, by attempting to access data not intended for the application program in question.

Referring now to the Swartz patent, and to FIG. 4 in particular, a chip card 1 comprises a microprocessor 2c, wherein the microprocessor includes a first register 10a for storing a first code, and a memory 5 is connected to the microprocessor for storing a plurality of application programs. The chip card 1 provides protection from unauthorized data modification by using a secure microcode signal. As correctly noted by the Examiner, Swartz discloses an error checking mechanism using the microcode in the first register 10a of the chip card 1, but fails to disclose a check bit being included in the microcode within the register, as recited in independent Claim 5.

The Examiner cited the Pockrandt et al. patent as disclosing a checking process for preventing unauthorized modification of data in a chip card by setting a check bit in a check register according to a command processed by a central processing unit. Any data modification takes place after the check process and permission is given afterwards.

The Examiner has taken the position that it would have been obvious to incorporate the check process taught by Pockrandt et al. into the chip card of Swartz for the purpose of providing a checking device within the chip card to prevent unauthorized data modification. The Applicants respectfully submit that even if the references were combined as suggested by the Examiner, the claimed invention is still not produced.

As recited in independent Claim 5, a first code is stored on at least one check bit in the first register for an

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entity to be executed, and the first register is updated based upon a call instruction and a return instruction during execution of a new entity. In Swartz, the first register stores a microcode, and the memory is accessed only after the memory has decoded the microcode. Swartz, fails to teach or suggest updating the first register based upon a call instruction and a return instruction during execution of a new entity, as recited in Claim 5.

Pockrandt et al. discloses the use of a check bit, but also fails to teach or suggest updating the register including the check bit based upon a call instruction and a return instruction during execution of a new entity. Instead, the commands which are necessary to set the check bit must be located in a defined address region of the data modification program, and before setting the check bit, the check register must check whether or not the commands for setting it come from that defined address region.

Moreover, Pockrandt et al. uses the check bit for preventing unauthorized modification of data in the chip card. Reference is directed to column 2, lines 15-21 of Pockrandt et al., which provides:

"In a method according to the invention, a check bit is set in a check register before performing a check for permission to make a data modification in a memory region of the nonvolatile memory, which can be done, for instance, by polling a secret number. After permission has been checked and before the data modification itself, a check is then made as to whether or not the check bit has been set."
(Emphasis added).

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In contrast, the check bit in the claimed invention is used "for checking whether access to locations in said memory is authorized for the new entity." In other words, the new entity is a new application program to be executed by the microprocessor.

Accordingly, it is submitted that independent Claim 5 is patentable over the Swartz patent in view of the Pockrandt et al. patent. Independent Claims 14, 20 and 29 are similar to independent Claim 5, and it is submitted that these claims are also patentable over the Swartz patent in view of the Pockrandt et al. patent.

II. New Independent Claim 37 Is Patentable

New independent Claim 37 is directed to a chip card comprising a microprocessor including an operating system working with a set of instructions, and a memory is connected to the microprocessor for storing a plurality of application programs therein. The microprocessor comprises a first register for storing a first code, on at least one check bit, corresponding to a first application program to be executed from among said plurality of application programs.

If execution of the first application program requires intervention of a second application program from among said plurality of application programs, then the first application program sends a call instruction to the microprocessor requesting such intervention. The first register is updated based upon the call instruction for storing a second code, on the at least one check bit, corresponding to the second application program to be executed.

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The chip card further comprises a checking device connected to the microprocessor for checking the second code as to whether access to locations in the memory are authorized for the second application program. The chip card in accordance with the present invention does not rely on monitoring the addresses being processed, but rather on a code contained in the microprocessor and which is updated by a specific instruction, i.e., a call instruction. This code is compared with the control bits stored in the memory - and not with dynamically accessed addresses.

The Swartz and Pockrandt et al. patents have the deficiencies as noted above. In particular, Pockrandt et al. discloses the use of a check bit, but fails to teach or suggest updating the register including the check bit based upon a call instruction and a return instruction during execution of a new application program. Instead, the commands which are necessary to set the check bit must be located in a defined address region of the data modification program, and before setting the check bit, the check register must check whether or not the commands for setting it come from that defined address region.

Accordingly, it is submitted that new independent Claim 37 is patentable over the Swartz patent in view of the Pockrandt et al. patent.

In view of the patentability of the independent Claims 5, 14, 20, 29 and 37, it is submitted that their dependent claims which recite yet further distinguishing features of the invention are also patentable. These dependent claims need no further discussion herein.

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CONCLUSION

In view of the claims and the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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